AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) An automatic control device ~~(1)~~, comprising

input means ~~(21, 24)~~ for inputting samples comprising measured values ~~(7)~~ of cyclic voltage and/or current <u>with a defined nominal frequency</u>;

computing means ~~(21)~~ for computing a parameter on the basis of said samples, and for comparing the computed parameter to a predefined condition; <u>and</u>

initiating means ~~(21, 23)~~ for initiating a control function in response to the parameter meeting the predefined condition; ~~characterized by~~ said input means ~~(21, 24)~~ being arranged to input a predefined number of samples per one cycle <u>of the nominal frequency</u>; <u>and</u>

said computing means ~~(21)~~ being arranged to compute the parameter with a discrete Fourier transform algorithm optimized on the basis of fixed coefficients corresponding to said predefined number of samples per cycle <u>of the nominal frequency</u>.

2. (Currently Amended) An automatic control device as claimed in claim 1, ~~characterized in that~~ <u>wherein</u> said predefined number is a power of 2.

3. (Currently Amended) An automatic control device as claimed in claim 1 ~~or~~ ~~2, characterized in that~~ wherein said predefined number is 32.

4. (Currently Amended) An automatic control device as claimed in claim 1, ~~2~~ ~~or 3, characterized in that~~ wherein in said optimized Fourier transform algorithm calculations involving coefficients fixed to zero have been eliminated.

5. (Currently Amended) An automatic control device as claimed in ~~any one of~~ ~~claims 1 to 4, characterized in that~~ claim 1, wherein in said optimized Fourier transform algorithm multiplication by fixed coefficients 1 or -1 ~~are~~ is avoided by use of signs.

6. (Currently Amended) An automatic control device as claimed in ~~any one of~~ ~~claims 1 to 5, characterized in that~~ claim 1, wherein in said optimized Fourier transform algorithm two or more multiplications by a fixed coefficient have been combined into a sum equation.

7. (Currently Amended) An automatic control device as claimed in ~~any one of~~ ~~claims 1 to 6, characterized in that~~ claim 1, wherein in said optimized Fourier transform algorithm samples and coefficients are brought to integer form by multiplication by a value that is fourteenth power or higher of two.

8. (Currently Amended) An automatic control device as claimed in ~~any one of~~ ~~claims 1 to 7, characterized in that~~ claim 1, wherein said computing means are

arranged to compute a parameter that is one of the following: root-mean-square

current, power factor, ~~(sign)~~ power factor sign, distortion, and earth fault current.

9. (Currently Amended) An automatic control device as claimed in ~~any one of claims 1 to 8, characterized in that~~ claim 1, wherein the automatic control device is

an electric protection device and said control function comprises isolation of a

second device ~~(3)~~ from the electric line ~~(2)~~.

10. (Currently Amended) An automatic control device as claimed in ~~any one of claims 1 to 8, characterized in that~~ claim 1, wherein the automatic control device is

connected to a generator (40) feeding the electric line (42) and said control function

comprises adjustment of the operation of said generator.

11. (Currently Amended) A method for automatic control of an electrically

operated device, comprising

Inputting a predefined number of samples comprising measured values of

cyclic voltage and/or current with a defined nominal frequency;

computing a parameter on the basis of said samples;

comparing the computed parameter against a predefined condition;

initiating a control function in response to the parameter meeting the

predefined condition;

~~characterized by~~ fixing the number of samples input per one cycle of the

defined nominal frequency; and

computing the parameter with a discrete Fourier transform algorithm

optimized on the basis of fixed coefficients corresponding to said predefined number

of samples per cycle of the defined nominal frequency.

12. (Currently Amended) A computer program product, executable in a

computer, ~~characterized in that~~ wherein execution of the computer program product

in the computer causes the computer to carry out the steps of claim 11.

13. (New) An automatic control device as claimed in claim 2, wherein in said

optimized Fourier transform algorithm calculations involving coefficients fixed to zero

have been eliminated.

14. (New) An automatic control device as claimed in claim 13, wherein in

said optimized Fourier transform algorithm multiplication by fixed coefficients 1 or -1

are avoided by use of signs.

15. (New) An automatic control device as claimed in claim 14, wherein in

said optimized Fourier transform algorithm two or more multiplications by a fixed

coefficient have been combined into a sum equation.

16. (New) An automatic control device as claimed in claim 15, wherein in

said optimized Fourier transform algorithm samples and coefficients are brought to

integer form by multiplication by a value that is fourteenth power or higher of two.

17. (New) An automatic control device as claimed in claim 16, wherein said computing means are arranged to compute a parameter that is one of the following: root-mean-square current, power factor, power factor sign, distortion, and earth fault current.

18. (New) An automatic control device as claimed in claim 17, wherein the automatic control device is an electric protection device and said control function comprises isolation of a second device from the electric line.

19. (New) An automatic control device as claimed in claim 18, wherein the automatic control device is connected to a generator feeding the electric line and said control function comprises adjustment of the operation of said generator.

20. (New) A computer program product according to claim 12, wherein said predefined number is a power of 2.